

Industrial Research Project Title	Material Requirement Planning (MRP) System Design for Packaging Line of Aluminum Alloy Wheels of Automobiles
Industrial Research Project Credits	6
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Department	Production Engineering
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#### Abstract

The purpose of this industrial research project is to design and develop a Material Requirement Planning (MRP) system for packaging line of an aluminum alloy wheels manufacturer as a case study. The quantity of purchase orders and production orders are used for planning after learning the material using demand.

The system design is divided into four subsystems; e.g. the inventory subsystem, the product structure subsystem, the material requirement processing subsystem, and the primary purchase orders-production orders subsystem. These subsystems were designed and analyzed by using the relational model database, and later used the mathematical model design algorithms to write this software. The software was designed based on Microsoft Access 2000 and Visual Basic for Application to write both data and mathematic calculations. The software was tested with the real production data and accordingly compared the actual results with the existing system. According to the study, it was shown that, by implementing the software, the quantity of the material purchase orders and the quantity of production orders are effectively decreased to the corresponding need. An increased on-time shipping to delivery performance and improvement of the productivity of production planning system were also found.